



Deep Tech Forum 2024 NYC Climate Week

基調講演と
パネルディスカッションの資料

SOSV

HAX

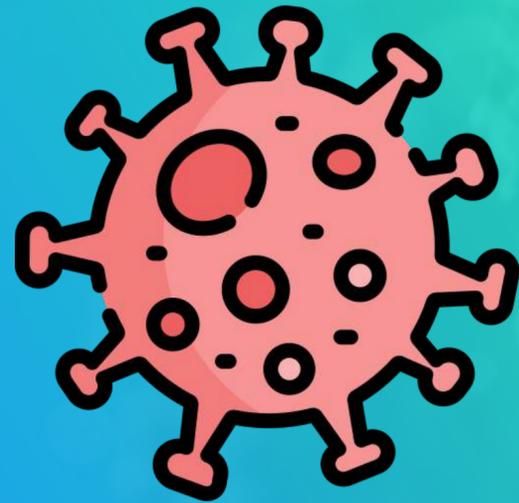
Can Hard Tech Drive Net-Zero? Innovating for Globally Secure Supply Chains

Susan Schofer
SOSV Partner & HAX Chief Science Officer

We are at a time like no other

Supply Chain Challenges

Disruptions like
Covid-19



Geopolitical tensions



Today's Supply Chain Faces Many Challenges

long distances

reliance on low-cost labor

poor inventory management

high waste

HAX

Nearshoring is imperative for secure supply chains

HAX

Challenges to on-shore production

aging workforce

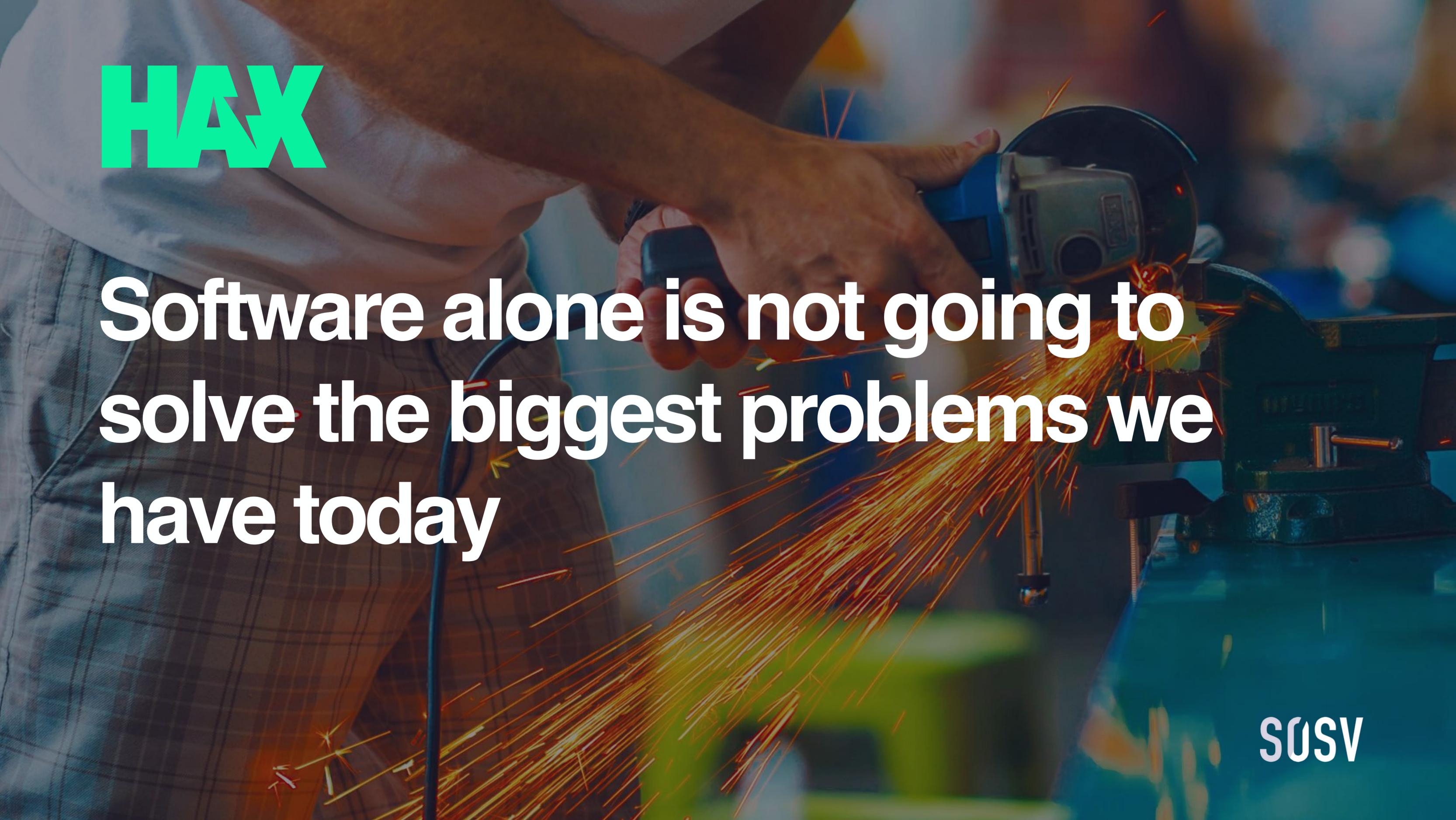
lack of skilled labor

high dependence on imports

limited manufacturing infrastructure

aggressive net-zero targets

HAX

A close-up photograph of a person's hands using a blue and black hand sander on a metal component. A dense shower of bright orange sparks is being ejected from the contact point. The person is wearing a light-colored long-sleeved shirt and blue plaid trousers. The background is a blurred industrial setting.

HAX

**Software alone is not going to
solve the biggest problems we
have today**

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A close-up photograph of a person's hands using a blue and black power tool, likely a grinder, to work on a metal piece. The tool is held in a firm grip, and a large, dense shower of bright orange and yellow sparks is being emitted from the point of contact. The background is blurred, showing a workshop or industrial setting with other people and equipment. The overall lighting is somewhat dim, with the sparks providing a strong point of light.

HAX

We need to invest in physical sciences

SOSV

A close-up photograph of a person's hands using a blue and black hand sander on a metal component. Bright orange sparks are flying from the contact point. The person is wearing a light-colored long-sleeved shirt and plaid trousers. The background is a blurred industrial setting.

HAX

hands on
venture capital
for hard tech

Newark - Pune - Shenzhen - Tokyo

SUSV

Venture Capital **fuelled** the digital era



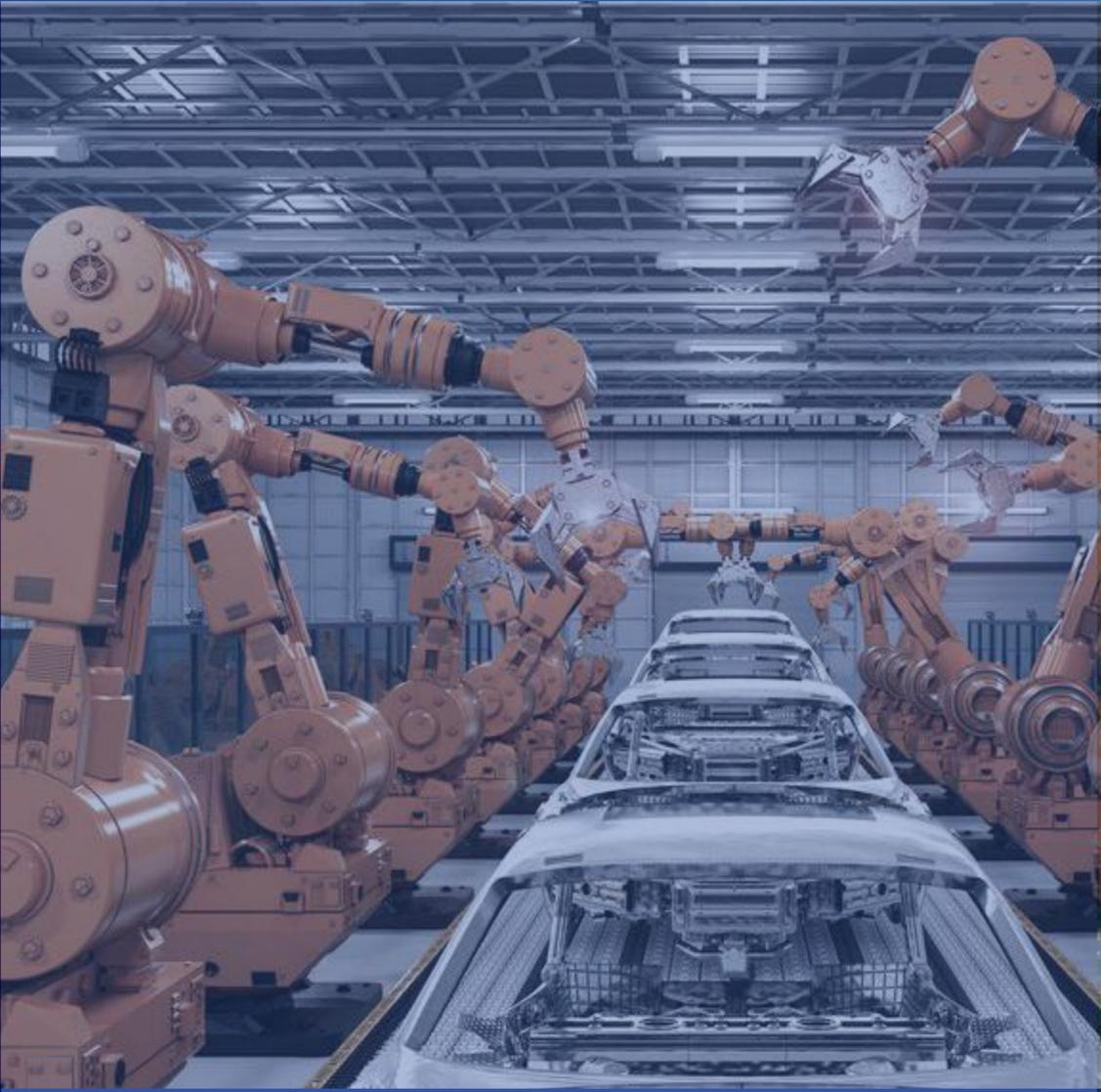
A large industrial facility, likely a steel mill or refinery, is shown in silhouette against a dramatic sky. Numerous tall smokestacks are visible, each emitting thick, billowing plumes of white smoke that rise into the air. The sky is a mix of deep blue and soft orange, suggesting either dawn or dusk. The overall scene conveys a sense of heavy industry and environmental impact.

**Venture Capital now needs
to feed a **new era****

Hard Tech to address supply chain security



Energy Independence



Robotics in Manufacturing

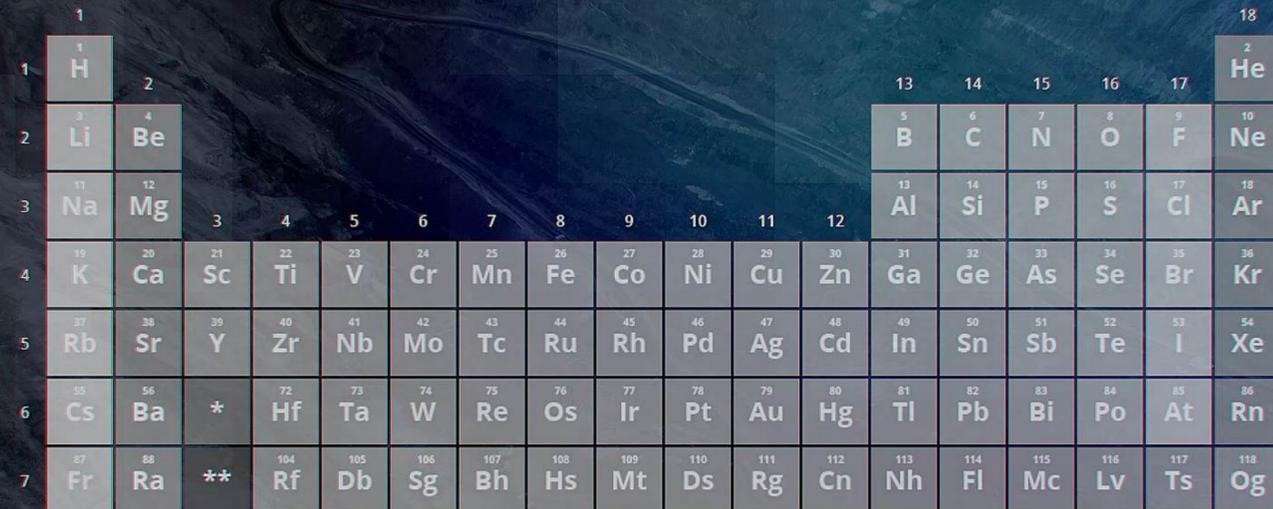


Supply Chain Technologies

Energy independence

The energy transition is happening

the next question is how that happens with the borders of the US and allies. Energy security is critical



A periodic table of elements with atomic numbers and symbols. The table is organized into rows and columns. The first row contains Hydrogen (1, H) and Helium (2, He). The second row contains Lithium (3, Li) and Beryllium (4, Be), followed by Boron (5, B), Carbon (6, C), Nitrogen (7, N), Oxygen (8, O), Fluorine (9, F), and Neon (10, Ne). The third row contains Sodium (11, Na) and Magnesium (12, Mg), followed by Aluminum (13, Al), Silicon (14, Si), Phosphorus (15, P), Sulfur (16, S), Chlorine (17, Cl), and Argon (18, Ar). The fourth row contains Potassium (19, K), Calcium (20, Ca), Scandium (21, Sc), Titanium (22, Ti), Vanadium (23, V), Chromium (24, Cr), Manganese (25, Mn), Iron (26, Fe), Cobalt (27, Co), Nickel (28, Ni), Copper (29, Cu), Zinc (30, Zn), Gallium (31, Ga), Germanium (32, Ge), Arsenic (33, As), Selenium (34, Se), Bromine (35, Br), and Krypton (36, Kr). The fifth row contains Rubidium (37, Rb), Strontium (38, Sr), Yttrium (39, Y), Zirconium (40, Zr), Niobium (41, Nb), Molybdenum (42, Mo), Technetium (43, Tc), Ruthenium (44, Ru), Rhodium (45, Rh), Palladium (46, Pd), Silver (47, Ag), Cadmium (48, Cd), Indium (49, In), Tin (50, Sn), Antimony (51, Sb), Tellurium (52, Te), Iodine (53, I), and Xenon (54, Xe). The sixth row contains Cesium (55, Cs), Barium (56, Ba), an asterisk (*), Hafnium (72, Hf), Tantalum (73, Ta), Tungsten (74, W), Rhenium (75, Re), Osmium (76, Os), Iridium (77, Ir), Platinum (78, Pt), Gold (79, Au), Mercury (80, Hg), Thallium (81, Tl), Lead (82, Pb), Bismuth (83, Bi), Polonium (84, Po), Astatine (85, At), and Radon (86, Rn). The seventh row contains Francium (87, Fr), Radium (88, Ra), two asterisks (**), Rutherfordium (104, Rf), Dubnium (105, Db), Seaborgium (106, Sg), Bohrium (107, Bh), Hassium (108, Hs), Meitnerium (109, Mt), Darmstadtium (110, Ds), Roentgenium (111, Rg), Copernicium (112, Cn), Nihonium (113, Nh), Flerovium (114, Fl), Moscovium (115, Mc), Livermorium (116, Lv), Tennessine (117, Ts), and Oganesson (118, Og).

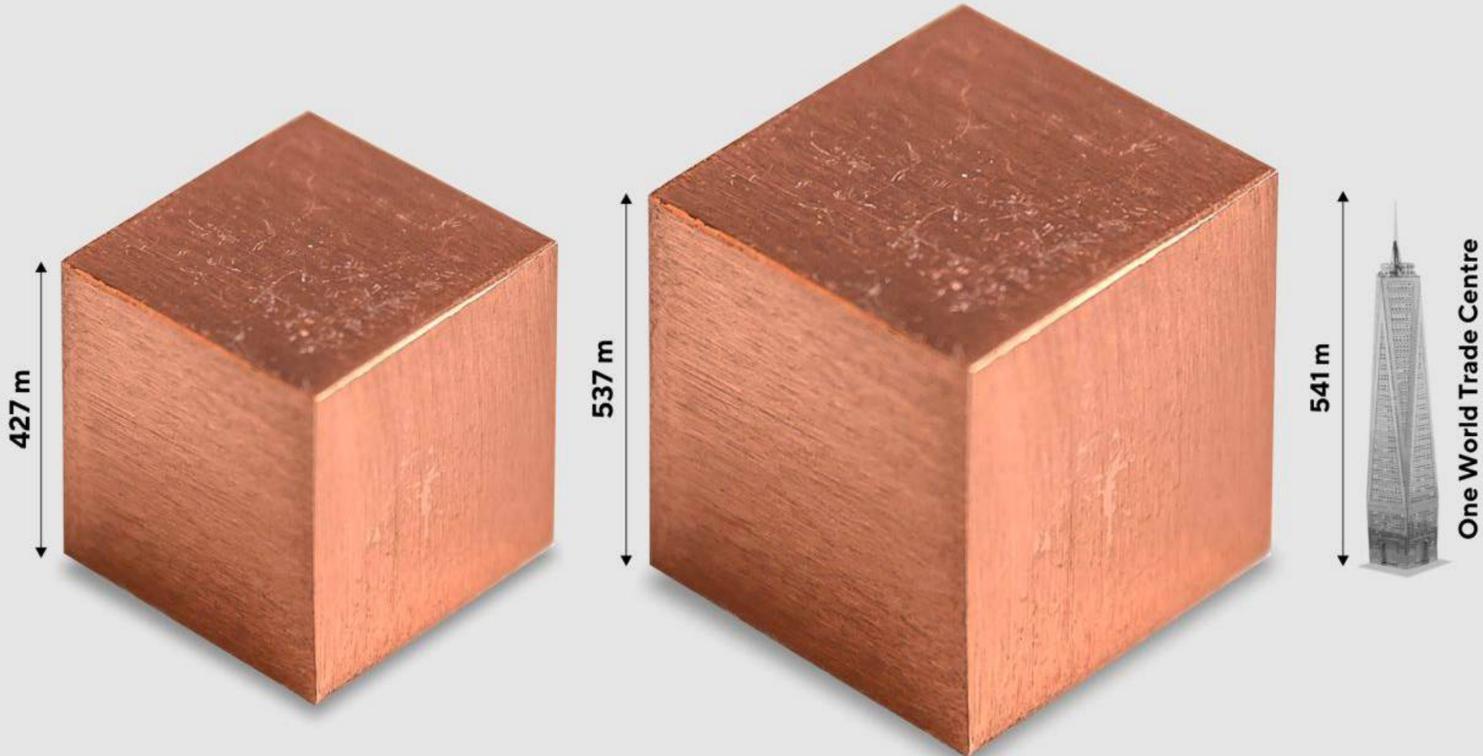
Lanthanides*

57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu

Actinides**

89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

We need **a lot** of elements.



700 million tonnes
Total copper produced over
the course of human history

1.4 billion tonnes
New copper needed to
reach net zero by 2050



Reliable sources



Responsible **sources**





From Black Mass to Cathode



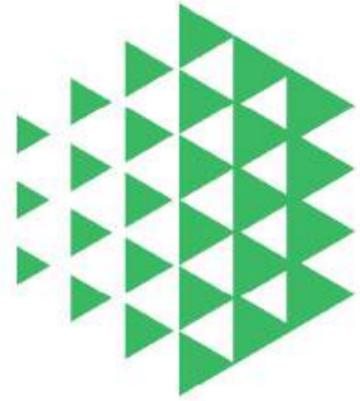
From Battery Waste to Cathode

Energy Independence

New approaches to avoid reliance on Critical Minerals

Hydrogen
New battery chemistries
Mechanical energy storage





AYRTON
ENERGY





PROJECT
TK



SOLVING THE
ENERGY
STORAGE
PROBLEM



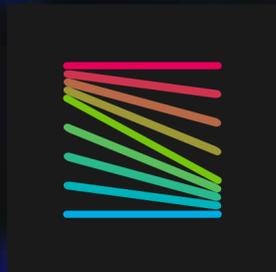
Robotics and AI in Manufacturing

Address labor and manufacturing challenges



As with energy, manufacturing of critical infrastructure will need to continually be automated





SILANA

Robotics

Supply chain

Just In Time manufacturing

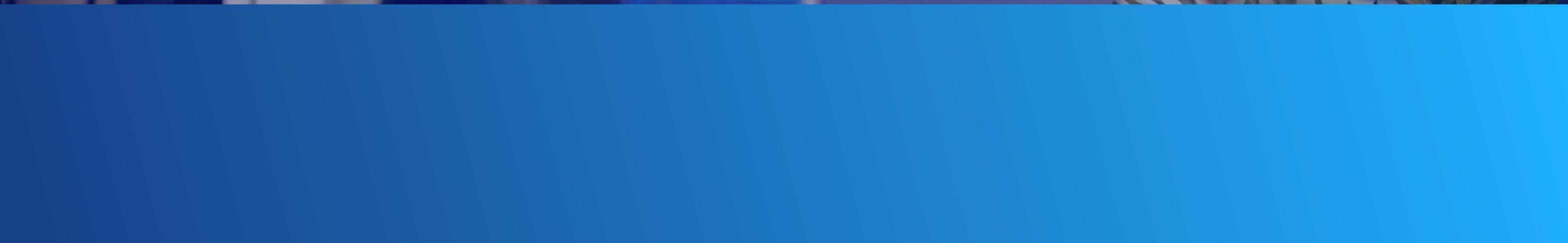
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Annual General Meeting June 2024

determin
unspun

unspun

determin
unspun



Supply Chain Technologies

Supply Chain companies are seeing continued positive traction





CargoKite



Transport

Energy

Supply chains



ARTYC



Energy

Supply chains



RIGHTBOT

Supply chains



UNBOX
ROBOTICS



Supply chains

SUSV

Annual General Meeting 2024

SMARTEX.AI

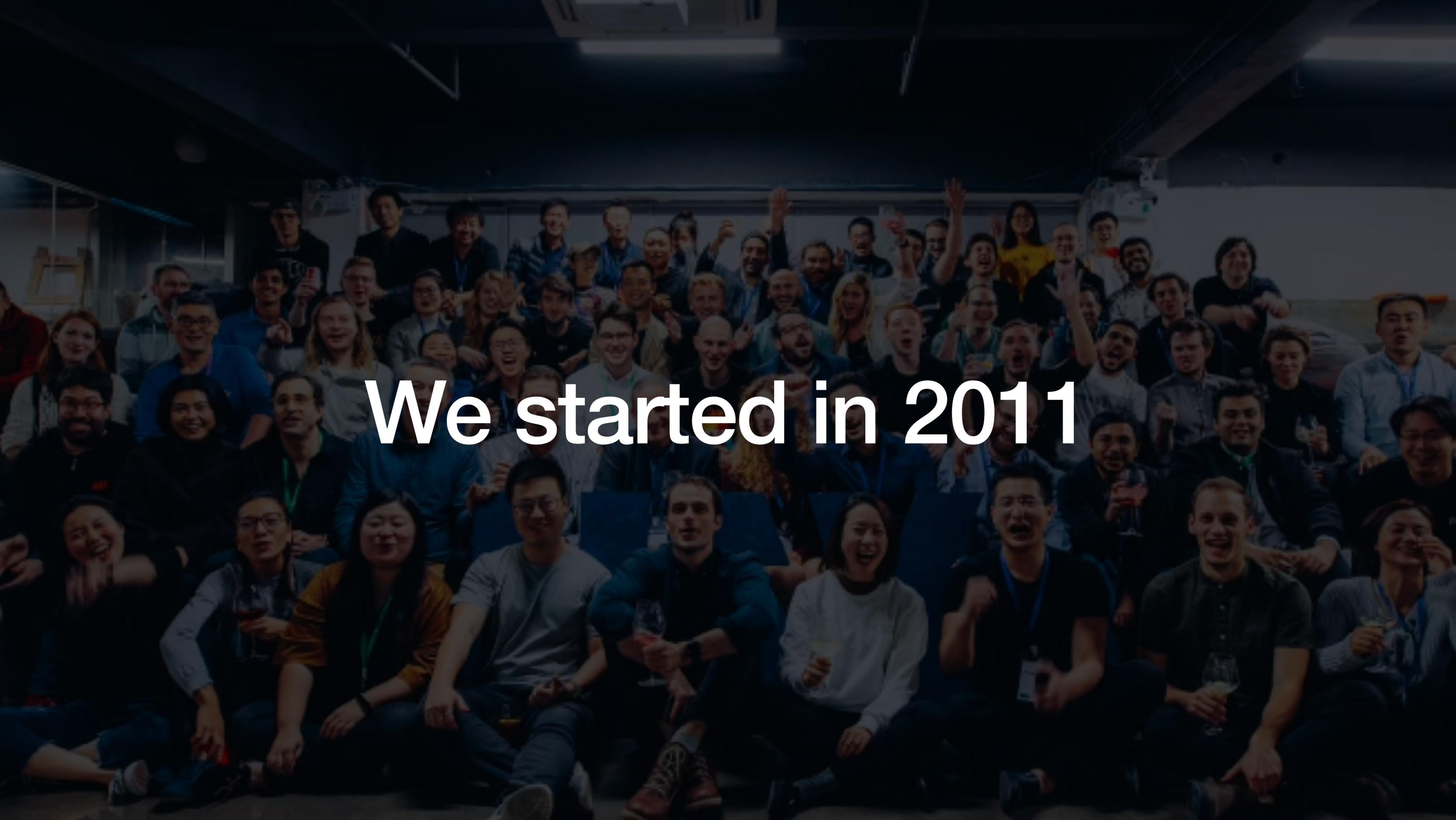
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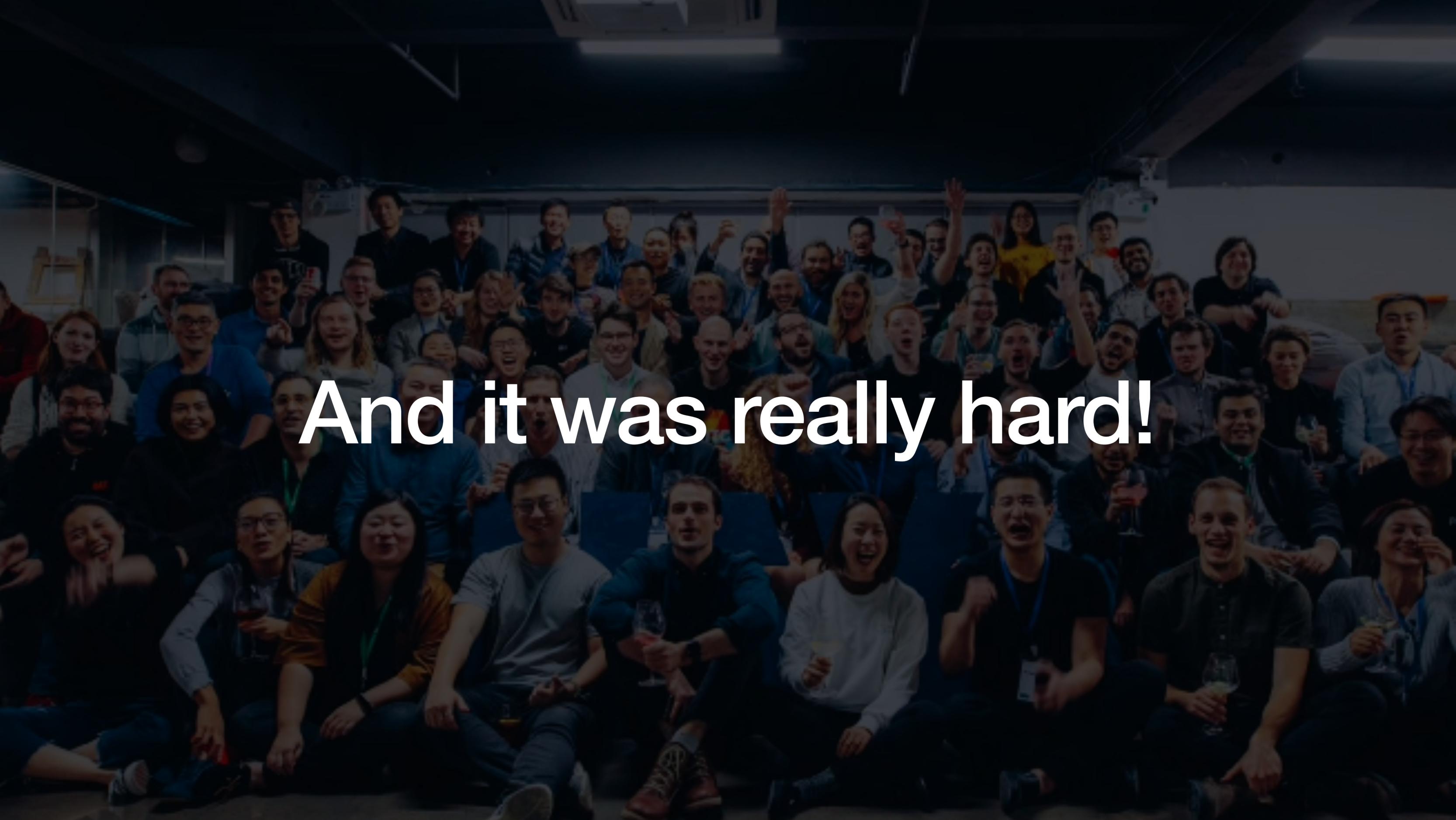
hands on
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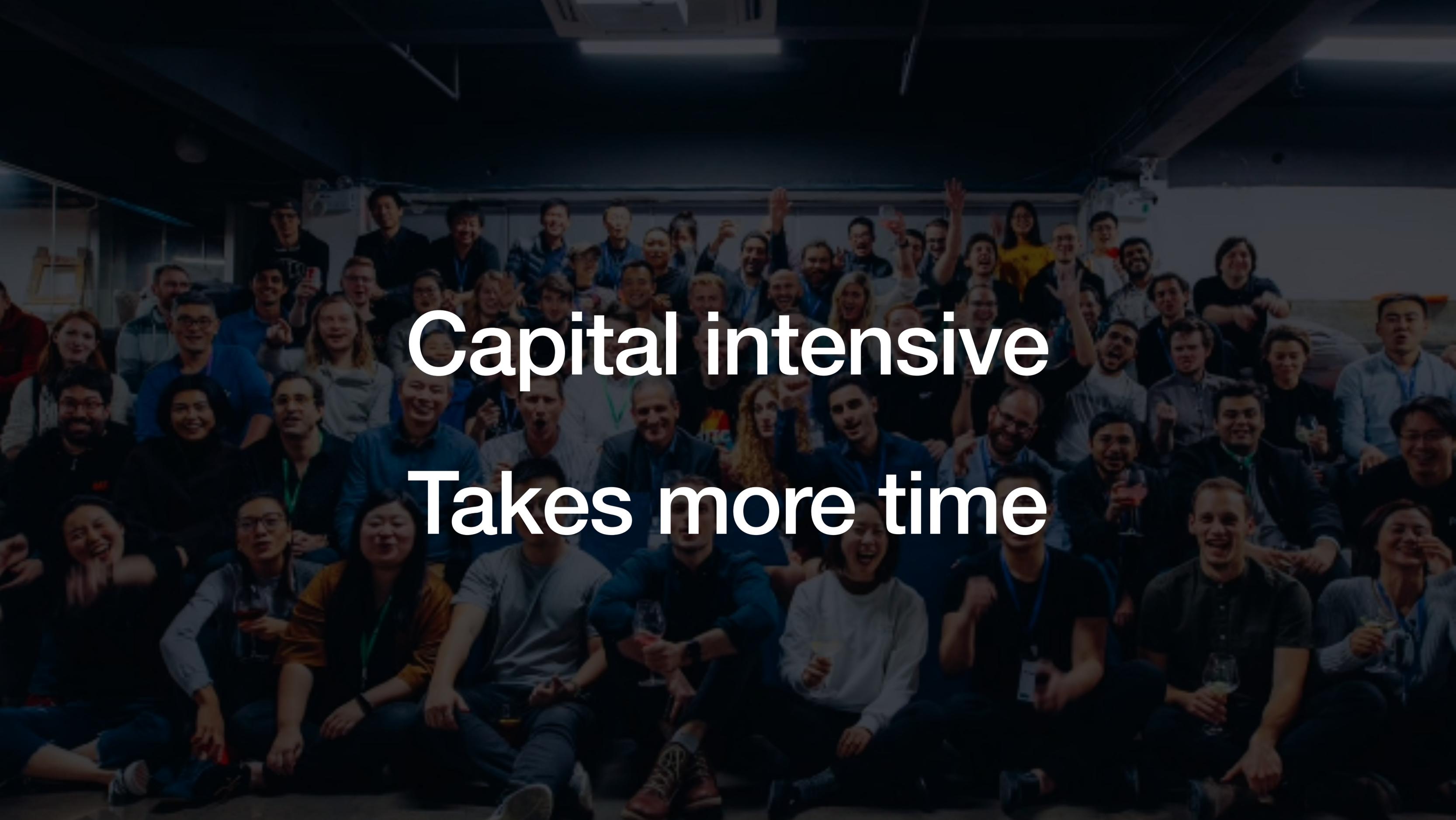
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We started in 2011

A large group of people, likely employees, are gathered in a dimly lit room, possibly a conference room or a lounge. They are arranged in many rows, some sitting on the floor and others standing behind them. Many of the people are holding glasses, suggesting a social event or a toast. The overall atmosphere appears to be one of celebration or a significant achievement. The text "And it was really hard!" is overlaid in the center of the image in a large, white, sans-serif font. The background is dark, with some light coming from the ceiling and possibly from the people's faces and glasses.

And it was really hard!



Capital intensive

Takes more time

What we do

**scientists to founders
and
research to reality**

How we do it

First check into Hard Tech

and

Deep technical help

Chemistry

Engineering

Design

Business

Bringing founders to build hard tech using a global ecosystem

newark

industrial R&D, corporates, fundraising, talent

pune

heavy industries, robotics, engineering

shenzhen

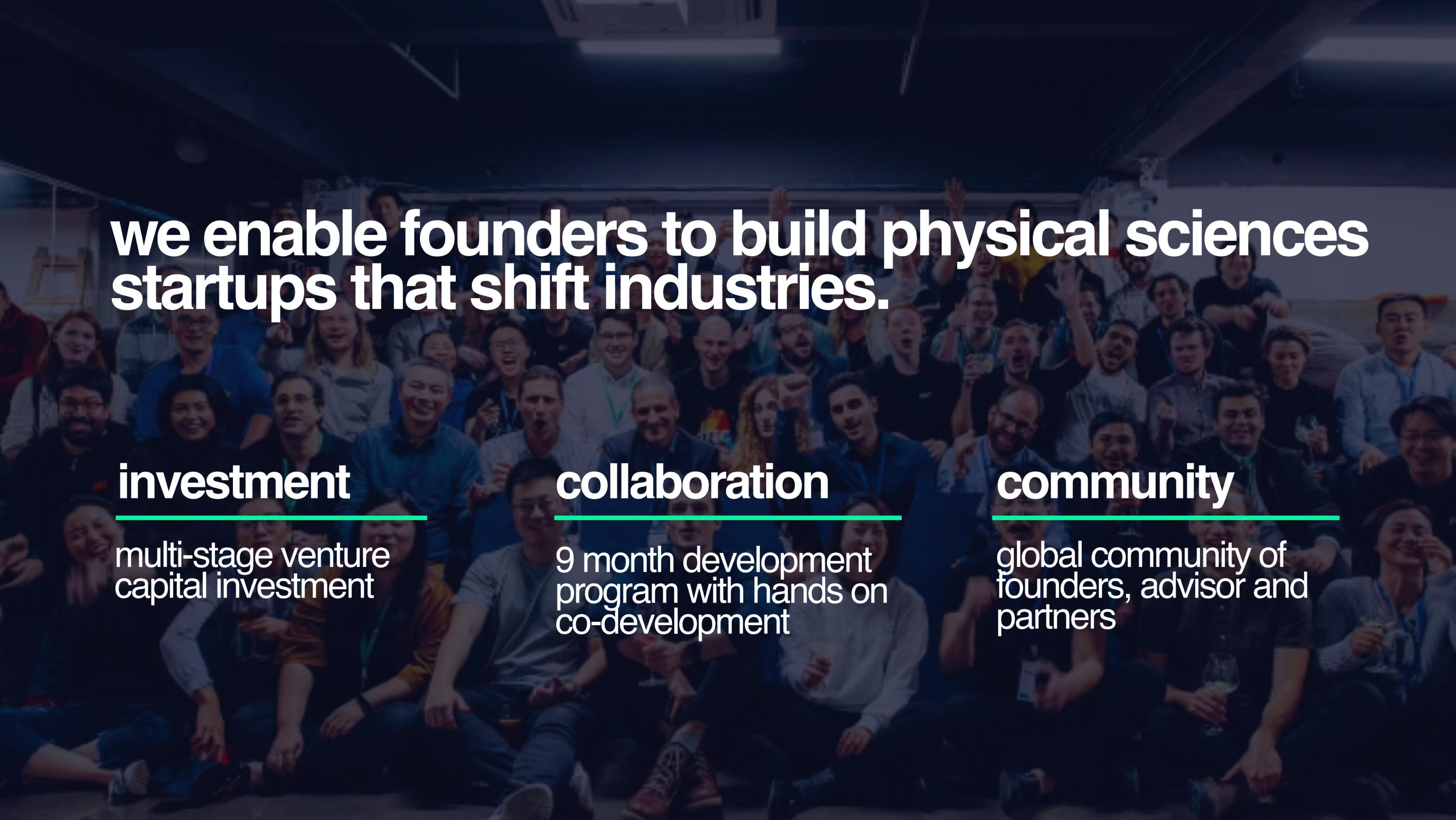
electronics, rapid fabrication, mass manufacturing

tokyo

multi-national corporates, tech R&D



reduce time between iterations
1 week equals 1 month



we enable founders to build physical sciences startups that shift industries.

investment

multi-stage venture capital investment

collaboration

9 month development program with hands on co-development

community

global community of founders, advisor and partners

A close-up photograph of a person's hands gently holding a small, downy bird chick in a nest made of straw. The person is wearing a blue shirt and dark pants. The background is a soft-focus outdoor setting with a yellow object, possibly a tool, visible in the foreground.

99% of a more sustainable future will be the **re-invention** of things we already know

- **Plastic • Water • Ice Cream**
- **Leather • Eggs • Cement**
- **Transportation • Batteries**
- **The nylon in yoga pants**
- **Shrimp farms • Grease**
- **Marine diesel • Meat**
- **Magnets • Food oil • Wood**
- **Collagen • Trash picking**
- **Green H₂ • Mineral extraction**
- **Fertilizer • Dirt • Cow Poop**

The background features a vibrant, futuristic digital cityscape. The scene is dominated by glowing blue and purple light trails that sweep across the frame, suggesting high-speed data flow or network activity. In the foreground and middle ground, there are numerous vertical, rectangular blocks of varying heights, some of which are illuminated with a bright, glowing light, resembling a stylized city skyline or a data visualization. The overall atmosphere is one of advanced technology and digital connectivity.

Thank you

Efficiency within supply chains is particularly apparent in textile and apparel industry



10%
global
emissions



**Water
Pollution
Transport
Waste**